4Z RICE GACT

Presented by Nancy Sims

Mecklenburg County
Land Use and Environmental Services Agency
Air Quality Division

Helping you breathe easy... for life
700 N. Tryon Street • Suite 205 • Charlotte, NC 28202-2236
(704) 336-5430 • FAX (704) 336-4391
http://airquality.charmeck.org

What is 4Z?

- Federal rule for stationary engines
- Major and area sources
- New and existing engines
- Non-emergency and emergency engines
- Focus is on HAP emissions
- Uses combination of control and management practices to achieve emission reductions

DISCUSSING AREA SOURCE RULES TODAY!!!!!!!!!

Why???

- Deadlines
  - Compliance dates have passed
- Wide ranging applicability
  - Insignificant sources
- Complex rule
- Modified in January 2013
- Compliance assistance

Acronyms & Terms

RICE	Reciprocating Internal Combustion Engine
GACT	Generally Available Control Technology (Federal rule for area sources)
Area Source	Potential to emit <25 tons total HAP or <10 tons individual HAP annually.
4Z	Subpart of the Federal Rules where this regulation is found (40 CFR 63 Subpart ZZZZ)
CI	Compression Ignition – diesel fueled
SI	Spark Ignition – Gasoline, natural gas, other gas
ULSD	Ultra low sulfur diesel (15ppm)
LB/RB	Lean burn (fuel lean), rich burn (fuel rich)
2S/4S	2 stroke power cycle completed in one revolution of the crankshaft; 4 stroke power cycle in two revolutions

Is My Engine Subject?

- Compression and spark ignition
- All sizes
- Existing-construction started before 06/12/06
- New RICE to comply with NSPS 4I/4J

DISCUSSING AREA SOURCE RULES TODAY!!!!!!!!!

Applicability/Exemption

- Stationary RICE only
  - No motor vehicles or non-road engines
  - No portable engines
  - Portable can become stationary
- Existing emergency RICE at residential, commercial, or institutional area sources not used or obligated to be available more than 15 hours per year for emergency demand response.

Emission Standards:

Existing RICE at Area Sources

HP	Engine Subcategory				
	Non-emergency				Emergency or black start
	CI	SI 2SLB	SI 4SLB/4SRB	SI LFG / DG	
≤ 300	Management Practices	Management Practices	Management Practices	Management Practices	Management Practices
300 – 500	49 ppm CO or 70% CO reduction				
> 500	23 ppm CO or 70% CO reduction		*If engine used >24 hrs/year:* 4SLB: Install oxidation catalyst 4SRB: Install non-selective catalytic reduction (NSCR)		

See Table 2D of 40 CFR 63 Subpart 4Z for full details of compliance requirements

Management Practices

Existing RICE at Area Sources

CI RICE

- Change oil* and filter
- Inspect air cleaner
- Inspect hoses and belts and replace as necessary

SI RICE

- Change oil* and filter
- Inspect spark plugs and replace as necessary
- Inspect hoses and belts and replace as necessary

Records must be maintained

Schedule is determined by the type of engine (at least annually)

**Oil analysis is an option (63.6625(i) or (j) with very specific requirements*

Management Practices:
Oil Analysis Program Option

- Conducted on same frequency

Analysis	Condemning Limit
Total base number (CI)	<30% of new oil
Total acid number (SI)	increases >3 mg KOH/gram from new oil
Viscosity	Changes >20% from new oil
Percent water content	>0.5% by volume

- If <u>any</u> limit is exceeded, oil must be changed
- Records must be maintained

Emission Standards

New RICE at Area Sources

Comply with 4Z by complying with the Stationary Engine New Source Performance Standards (NSPS)

- CI – 40 CFR 60 Subpart IIII
- SI – 40 CFR 60 Subpart JJJJ

Compliance Requirements

Existing RICE at Area Sources

Engine Subcategory	Compliance Requirements
Non-emergency CI RICE > 300 hp	• Initial performance testing • Notifications • Semiannual reports • ULSD and crankcase emissions controls • > 500 hp: 3 year testing required • > 500 hp: Monitoring and operating limits
Non-emergency SI 4SLB / 4SRB > 500 hp *>24 hrs/yr, not remote*	• Initial and annual compliance demonstrations • Notifications • Semiannual reports • Monitoring or operating limits
Emergency or black start engines Non-emergency CI ≤ 300 hp Non-emergency SI 2SLB Non-emergency SI 4SLB and 4SRB ≤ 500hp Non-emergency SI LFG/DG Non-emergency SI 4SLB or 4SRB > 500 hp *< 24 hrs/yr or remote*	• Management practices • Operate/maintain engine per instructions • Emergency engines: hour meter and monitoring • Emergency engines used for emergency demand response or local reliability: reporting and ULSD

Emergency Engines

- No limits on operating hours in emergency situations
- 100 hrs/yr operation allowed for:
  - Maintenance checks and readiness testing
  - Emergency Demand Response:
    - Energy Emergency Alert Level 2 per NERC Standard*
    - Deviation of voltage or frequency of 5% below standard*

**Annual report to EPA if >100 hp emergency engine operated or contractually obligated to operate in this manner for more than 15 hours per year.*
ULSD beginning January 1, 2015

Emergency Engines, cont.

- 50 hrs/yr (of 100) allowed for non-emergency operation*:

  Cannot be used for peak shaving, non-emergency demand response, or to generate income or supply power as part of a financial arrangement unless all of the following are met…

  - Engine dispatched by local system operator
  - Intended to mitigate local limitations and local supply interruption
  - Dispatch follows specific protocols and guidelines
  - Power provided to facility or to support local distribution system
  - The dispatch and the specific guideline or standard being followed must be identified and recorded

**Annual report to EPA if >100 hp emergency engine operated in this manner at any time during the year.*
ULSD beginning January 1, 2015

Important Dates

- Compliance date for CI/SI RICE
  - May 3, 2013 / October 19, 2013
- Initial Performance Test
  - 180 days after compliance date
    - October 30, 2013 / April 17, 2014
- Notification of Compliance Status due 60 days after compliance demonstration
- First semiannual report due January 31, 2014
- First annual emergency demand response report due March 31, 2016 (for 2015)
  - (http://www.epa.gov/cdx)

Resources

- MCAQ representative
- EPA's RICE NESHAP TTN website: http://www.epa.gov/ttn/atw/icengines/
  - Webinars and presentations
  - Implementation tools
  - Technical information
  - Compliance information
  - Regulatory navigation tools

Thank You!

Questions?